



CARBON / SULFUR ANALYZER

CS-580A

ELTRA's CS-580A is the ideal elemental analyzer for simultaneous determination of carbon and sulfur in organic samples. It features a resistance furnace with vertical ceramic tube and uses ceramic crucibles as sample carriers.

An automatic sample loader allows for analysis of large numbers of samples without operator intervention. The sample loader is available in two versions to accommodate 36 or 130 crucibles. For reliable analysis of acidified samples (TOC analysis), both versions are available in an acid-resistance configuration.

The temperature can be set in steps of 1 °C to a maximum of 1,550 °C. Thanks to sample weights of up to 500 mg and more even inhomogeneous materials can be reliably analyzed. The CS-580 A elemental analyzer can be equipped with up to four independent infrared cells for measuring carbon and sulfur concentrations, allowing for a great variety of applications.

BENEFITS CS-580A

- | Fast, simultaneous elemental analysis of C and S, TOC and TIC
- | Configurable for one-element (C or S) or multi-element (C & S) analysis
- | Wide concentration range from 0.005 – 100 %
- | High weights possible for elemental analysis of heterogeneous samples
- | Optional autoloader with 36 or 130 positions (acid-resistant version available)



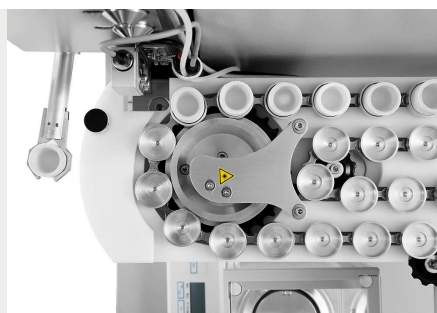
CARBON / SULFUR ANALYZER CS-580A

OPERATION AND ANALYSIS PROCESS

Operation of the CS-580 A elemental analyzer is simple, fast and convenient. The samples are weighed and registered in the software as manual analysis or analysis via autoloader. Typical sample weights are between 50 and 500 mg. After starting the analysis, the sample is introduced into the furnace and the combustion gases CO₂ and SO₂ are measured in up to four infrared measuring cells. The results of the elemental analysis can be exported via LIMS, report or text file.



Logging the sample into the software and weighing



Placing sample in autoloader and analysis



Measurement results and export

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CONFIGURATIONS AND OPTIONS

The elemental analyzer CS-580 A can be configured to meet a wide range of customer requirements. C, S and C/S configurations are available with up to 2 infrared cells for each element to cover a wide working range. Robust measuring cells for the reliable determination of sulfur in very high concentrations are also available.

The ELTRA CS-580 A series is perfectly equipped for TOC analysis according to DIN EN 15936 with optional acid-resistant autosamplers, as well as the optional TIC module.

An optional autoloader with 130 crucible positions is available for elemental analyses with high sample throughput.



Analyzer with optional TIC module



Autoloader with 130 crucible positions



Autoloader with acid-resistant plastic crucible holders

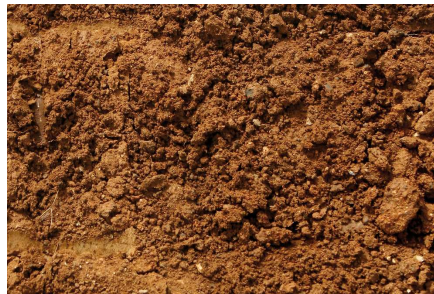
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TYPICAL SAMPLE MATERIALS

The CS-580 A elemental analyzer is perfectly suited for measuring carbon and sulfur concentrations in matrices such as ashes, building materials, coal, coke, gypsum, limestone, oil, plant materials, rubber, sand, soil, soot, tobacco, waste, ...



coal



soil



tobacco

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FUNCTIONAL PRINCIPLE

In the CS-580A elemental analyzers the sample is burnt in an oxygen atmosphere at temperatures of up to 1,550 °C. The furnace temperature can be freely selected in steps of 1 °C. The combustion gasses (CO₂, H₂O, SO₂) coming from the furnace pass through a dust filter. After the water vapor is chemically absorbed, the dried CO₂ and SO₂ gas is detected in the additional infrared cells. Depending on the configuration, it is possible to combine up to four infrared cells with different sensitivities to measure carbon and sulfur concentrations.

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TECHNICAL DATA

Measured elements	carbon, sulfur
Samples	organic
Furnace alignment	vertical
Sample carrier	ceramic crucibles
Field of application	agriculture, biology, chemistry / plastics, coal / power plant, construction materials, environment / recycling, medicine / pharmaceuticals
Furnace	resistance furnace (ceramic tube), adjustable up to 1550 °C (steps of 1 °C)
Detection method	solid state infrared absorption
Number of IR cells	1 - 4
Material of IR path	gold
Typical analysis time	60 - 120 s
Chemicals required	magnesium perchlorate, sodium hydroxide
Gas required	oxygen 99.5 % pure (2 - 4 bar / 30 - 60 psi) compressed air (4 - 6 bar / 60 - 90 psi)
Power requirements	230 V, 50/60 Hz, max. heat up current 2000 W
Dimensions (W x H x D)	55 x 100 x 60 cm (analyzer) 85 x 35 x 45 cm (Autoloader for 130 crucibles)
Weight	~ 90 kg (analyzer) ~ 15 kg (Autoloader for 130 crucibles)
Required equipment	PC, monitor, balance (resolution 0.0001g)
Required accessories	Autoloader (for 36 or 130 crucibles)
Optional accessories	TIC module, voltage stabilizer 5 KVA

www.eltra.com/cs580A

ORDER DATA

ELTRA CS-580A

(Please order PC, monitor, balance, Autoloader and consumables (starter-kit, anhydron, sodium hydroxide) separately)

Measuring ranges at 500 mg sample weight

2)

88100-4015		CS-580A	1xC	0.05 – 100% C
88100-4017		CS-580A	2xC	0.005 – 12% C 12 – 100% C
88100-4018		CS-580A	2xS	0.005 – 2% S 2 – 20% S
88100-4019		CS-580A	1xC + 1xS	0.05 – 100% C 0.005 – 2% S
88100-4020		CS-580A	1xC + 2xS	0.05 – 100% C 0.005 – 2% S 2 – 20% S
88100-4021		CS-580A	2xC + 1xS	0.005 – 12% C 12 – 100% C 0.005 – 2% S
88100-4022		CS-580A	2xC + 2xS	0.005 – 12% C 12 – 100 % C 0.005 – 2 % S 2 – 20% S

Further measuring range combinations on request

REQUIRED ACCESSORIES

PC, MONITOR, BALANCE

71015-1000	Computer with Intel Core i5-8400 Processor, 256 GB SSD; 8 GB RAM; Windows 10 operating system; keyboard; mouse
88400-0584	Monitor, TFT (23.8")
88400-0645	Balance (resolution 0.0001 g)
14535	Autoloader for 36 crucibles
14535-1001	Autoloader for 36 crucibles, acid resistant
14533	Autoloader for 130 crucibles
14533-1001	Autoloader for 130 crucibles, acid resistant

REQUIRED CONSUMABLES / CHEMICALS FOR FIRST OPERATIONS

88500-0005 Starter-kit for 500 analyses CS 580A (500 crucibles, 50 g glass wool, 100 g Combsolid)

90200  Anhydron (magnesium perchlorate), 454 g l)

90210  Sodium hydroxide, 500 g l)

FURTHER OPTIONS AND CONSUMABLES

ACCESSORIES (HARDWARE)

88200-3800  TIC-Module

72070 Oxygen regulator

88400-0610 Barcode scanner

88600-0015  Crucible holder

CHEMICALS (FILLINGS FOR GLASS AND QUARTZ TUBES)

90200  Anhydron (magnesium perchlorate), 454 g l)

90210  Sodium hydroxide, 500 g l)

90331  Glass wool, 454 g

90332  Glass wool, 50 g

92610  Tube of high vacuum grease, 35 g

88600-0008  Combsolid, 100 g

91000-1005  Copper, flakes, 25 g

90840		Quartz sand, 100 g
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88400-0508		Steel wool
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CRUCIBLES

90149		Ceramic crucibles, premium, Ø 1", foil-wrapped, 1,000 pieces
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90148		Ceramic crucibles, premium, Ø 1", bagged, 1,000 pieces
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88400-0176		Ceramic filtering crucibles, 100 pieces
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88400-0142		Filtering crucibles, 100 pieces, small version
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REAGENT TUBES

09090		Reagent tubes 32 x 280 mm, 1 piece
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09092		Reagent tube XL size, 54 x 36 x 280 mm
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09093		Reagent tube XXL size, length 280 mm
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TOOLS FOR OPERATION: SPATULAS, TWEEZERS, TONGS AND OTHER

88400-0229		Tweezers (160 mm), curved, 1 piece
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88400-0472		Tweezers (145 mm), straight, 1 piece
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88400-0475		Set with 6 spatula and 1 tweezers
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88400-0477		Weighing boat, 1 piece, for weighing and usage of granulates
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90145		Tongs for ceramic crucibles and boats, 220 mm, 1 piece
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90146 Steel pot for preheated crucibles and used crucibles



TOOLS FOR MAINTENANCE

35400-8000 Maintenance kit CS-580A

71010 Brush, 16 mm, 1 piece, for cleaning balance from dust



88400-0473 Powder funnel (plastics), 1 piece, for easy filling of chemical tubes



88400-0490 Rubber plug 29 x 35 x 30 mm, 1 piece, for sealing big glass tubes like 09090



88600-0026 Anhydron filter tube

CALIBRATION MATERIALS

Calibration materials may show slight variations depending on the current lot.

To see the current certification please visit www.ELTRA.com.

COAL: CERTIFIED SULFUR CONTENT

92511-3005 Coal, 50 g, < 0.1 % S

92511-3010 Coal, 50 g, 0.1 – 0.5 % S



92511-3020 Coal, 50 g, 0.5 – 1.0 % S



92511-3030 Coal, 50 g, 1.0 – 1.5 % S



92511-3040 Coal, 50 g, 1.5 – 2.0 % S



92511-3050 Coal, 50 g, 2.0 – 3.0 % S



92511-3060 Coal, 50 g, 3.0 – 4.0 % S



92511-3070 Coal, 50 g, 4.0 – 5.0 % S



92511-3080



Coal, 50 g, >5.0 % S

COAL, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT, CERTIFIED

92550-3010

Coal, premium, 50 g, < 1.0 % S

92550-3020



Coal, premium, 50 g, ~ 1 % S

92550-3040



Coal, premium, 50 g, 1.0 – 3.0 % S

92550-3060



Coal, premium, 50 g, > 3.0 % S

COKE, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT, CERTIFIED

92560-3010



Coke, premium, 50 g

PET COKE, PREMIUM, C/H/N/S, ASH, VOLATILE CONTENT CERTIFIED

92570-3020

Pet coke, premium, 50 g, ~ 1 % S

92570-3040

Pet coke, premium, 50 g, ~ 1 % S

OTHER

90812-3001



Limestone, 25 g, 0.04 % S

90812-3002



Limestone, 25 g, 0.4 % S

90812-3003

Limestone, 25 g, < 5 % C

90812-3004

Limestone, 25 g, 5 – 10 % C

90817-3001

Soil, 25 g, > 2 % C, S

90817-3002

Soil, 25 g, < 1 % C, S

90817-3003

Soil, 25 g, > 2 % C, S

90817-3004

Soil, 25 g, > 2 % C, S

91900-1001 Ore, 30 g, ~1.4 % S



91900-1002 Ore, 30 g, ~4.2 % S



91900-1003 Ore, 30 g, ~3 % S

PRIMARY SUBSTANCES FOR CALIBRATION

90710-3010 EDTA, 50 g



90710-3030 Sucrose, 50 g

90810 Calcium carbonate, 100 g



90821 Barium sulphate, 50 g



90824 Sulfanilic acid, 50 g



91900-2001 Zinc sulfide, 50 g, 32 % S

Please note: Every analyzer requires PC, monitor, balance and some consumables (crucibles, chemicals) which have to be ordered separately